

# Measles and Whooping cough , Tetanus

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# Measles



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- The measles also known as rubeola, it is paramyxovirus, mostly affect children, but in non-immunized communities 80-85% of young adults have evidenced past infection.
- Spread by droplets.
- The infectivity from 10 days before to 2 weeks after the onset of rash.

# Clinical features

The onset of clinical features ranges from 7-14 days after exposure to virus

➤ **The clinical features divided to stages includes**

○ **Prodromal stage (4\_5 days )**

The first signs of measles usually a high fever

○ **Classical triad of measles (3C) ; coryza, conjunctivitis, and cough.**

- May be laryngeal involvement, hoarseness of voice due to laryngitis.
- G.I.T involvement ; diarrhea and vomiting.
- Koplik,s spots : are diagnostic of measles , appear in 2 Nd day and fade after 4 days.

○ **Stage of eruption**

On 5 days red macules rash appear in the face, then invasion of the whole skin within a few hours

Increase number of spots they fuse to form the characteristic appearance of measles. Usually in 2-3 days the rash fully erupted and then followed by fine desquamation

○ **Complications are rare in adult infection**

## ➤ Diagnosis

Usually diagnosis from the classic clinical picture  
Confirmed by

- Isolation of virus
- PCR
- Serologic test for measles specific Ig M or Ig G titers

## ➤ Treatment

- Pruritis ; Calamine lotion, anti histamine
- Local anti-septic
- Antiviral drugs
- Antibiotic for secondary infection

# Whooping cough



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- Whooping cough is caused by Bordetella Pertussis
- Spread by droplet infection
- Most commonly in children < 5 years
  
- **C/f divided in to 3 stages**
  
- ❖ **Catarrhal stage** lasting about 1 week, commonly present with conjunctivitis, rhinitis, and unproductive cough
- ❖ **Paroxysmal stage**
  - Characterized by severe bouts of cough, more severe at night Each paroxysm consists of a succession of short sharp cough, ending in deep inspiration ( whoop )
  - This character may be absents in adult
  - The last paroxysm followed by vomiting.
  - This stage lasts for one to several weeks
- ❖ **Convalescence stage** ; cough becomes less frequent, and sputum less tenacious



## ➤ **Complication**

- Bronchopneumonia
- Atelectasis
- Bronchiectasis
- Conjunctival Hemorrhage
- Prolapse rectum.

## ➤ **Diagnosis**

Isolation organism from nasopharynx swab culture

## ➤ **Management**

- Erythromycin, or clarithromycin or azithromycin
- Cough suppressant
- Maintenance nutrition
- Prevention
- DPT vaccination for infants
- Erythromycin in child and adult

# Tetanus



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- Tetanus caused by neurotoxin produced by strains of *Clostridium tetani* when introduced into tissue.
- The disease is characterized by muscular rigidity and spasm.
- Incubation period ; 6-10 days

## ➤ Pathogenesis

- Spores of *C. tetani* live in faeces, soils, dust, and on instruments.
- Spores may remain dormant for years in soil.
- Any kind of damage to skin or mucosa, may admit the spores.
- Spores germinate and bacilli multiply only in anaerobic conditions.
- The bacteria release an exotoxin, this travel up peripheral nerves



## ➤ Predisposing factors

- Delayed treatment of wound more than about 6 hours.
- Deep or contaminated wound
- Wound complicated by necrosis of muscles.

## ➤ Route of infection

- Punctured wound
- Unsterile surgery
- Bowel surgery
- Burns
- Animal bites
- Compound fracture

## ❖ Clinical features:-



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The initial manifestations may be local then general.

Common first signs of tetanus are headache and muscular stiffness in the jaw.

followed by neck stiffness, difficulty swallowing, rigidity of abdominal muscles, and spasm.

Reflex spasms develop in most patients, and can be triggered by minimal external stimuli.

Patients with tetanus usually afebrile.

muscle rigidity spreads in a descending pattern from jaw to the extensor muscles of the limbs over 24-48 hours.

## ❖ Clinical features:-

### ➤ Classical feature of general tetanus

Trismus ( lock jaw ):- in 75% of cases, and common first signs, characterized by inability to open the mouth due to spasm of masseter muscles..

Risus sardonicus :- sustained trismus may result in the characteristic sardonic smile due to nuchal rigidity.

Opisthotonos:- present in sever tetanus , flexion of the arms, extension of the legs, and rigidity of the abdominal wall, due to tonic contraction.

## ❖ Clinical features:-

### ➤ Classical feature of general tetanus

Dysphagia :- occurs in moderately severe tetanus as a consequence of pharyngeal muscle spasms.

Respiratory arrest :- may occur after periods of apnea resulting from spasm of the intercostal muscles, diaphragm, and laryngeal spasms.

Autonomic dysfunction:- develops in late stage of the disease, with hypertension and tachycardia alternating with hypotension and bradycardia; cardiac arrest may occur

## ➤ Complication

- Spasm of the vocal cords and spasm of the respiratory muscles that interference with breathing.
- Sympathetic overactivity is the major cause of death in (ICU).
- Bronchopneumonia, and aspiration pneumonia are a common cause of death.
- Tears of muscles.
- Long bone and thoracic vertebra fracture, and joint dislocations
- Autonomic instability, including HTN and dysrhythmias.
- Paralytic ileus, pressure sores, stress ulcer, and urinary retention.
- Hyperpyrexia
- Fluid an electrolyte disturbance

## ➤ Differential Diagnosis

- Rabies
- Tetany
- Dystonic reaction to drugs
- hysterical

## ➤ Diagnosis

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- No specific laboratory tests exist for determining the diagnosis of tetanus.
- Th diagnosis clinically based on the presence of trismus, dysphagia, generalized muscular rigidity, spasm, or combination.
- Blood count and blood chemistry findings are unremarkable.
- Culture:- sometimes culture of C tetani from the wounds of patients who do not have tetanus, and frequently cannot be cultured from the wounds of patients who do.
- Spatula Test :- is simple diagnostic bedside test that involves touching the oropharynx with spatula or tongue blade, if tetanus present, patients develop a reflex spasm of the masseters and bite the spatula.

# Treatment

- ❖ The goals of treatment include the following :-
  - Supportive therapy.
  - Debridement of wound
  - Prevent further toxin production.
  - Neutralized of absorbed toxins By human tetanus antitoxin
  - Controlling disease manifestations.
  - Managing complications.



# Treatment

❖ **The goals of treatment include the following :-**

➤ **Supportive thereby :-**

- ✓ Patients should be admitted to ICU, because of the risk of reflex spasm.
- ✓ A dark and quite environment.
- ✓ Avoidance of unnecessary procedures and manipulations.
- ✓ Prophylactic intubation in all patients with moderate to severe clinical manifestations.
- ✓ Tracheostomy should be performed in patients requiring intubation for more than 10 days.

# Treatment



❖ The goals of treatment include the following :-

## ➤ Debridement of wound :-

- ✓ If the wound is clear at presentation, no significant benefit.
- ✓ If debridement is indicated, should be undertaken only after stabilizing the patient.
- ✓ Excise at least 2 cm of normal viable tissue around the wound margin.
- ✓ Abscesses should be incised and drained.
- ✓ Any wound manipulation should be delayed until several hours after administration of antitoxin.

# Treatment

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❖ **The goals of treatment include the following :-**

➤ **Prevent further toxin production :-**

- ✓ Antimicrobials are used to decrease the number of vegetative forms of C tetani in the wound.
- ✓ Metronidazole has better antimicrobial activity, and decrease mortality.
- ✓ Penicillin was used for years, but it is not current drug of choice

➤ **Neutralized of absorbed unbound toxins :-**

- ✓ By human tetanus antitoxin ( tetanus immune globulin TIG ).
- ✓ Tetanus Toxoid vaccination , administrated IM injection at a separate side.

# Treatment

❖ The goals of treatment include the following :-

➤ **Controlling disease manifestations:-**

✓ Sedation ; benzodiazepine, phenobarbital, intrathecal baclofen

➤ **Managing complications:-**

✓ Specific therapy for autonomic system and control spasms.

# Prevention

- Active immunization; tetanus toxoided
- Passive immunization; in nonimmunized person and whenever a wound is contaminated, by used tetanus immunoglobulin.
- Destruction of spores
- In operation theatres by filtered ventilation, and by using antiseptic on floors and walls.
- Irradiation or autoclaving of surgical instruments.
- Povidone iodine for skin decontamination.
- Ttt of wound without delay.

# prognosis

- **The prognosis depend on incubation period.**
- **A high risk of mortality is associated with the following :-**
  - ✓ Short incubation period.
  - ✓ Early onset of convulsion.
  - ✓ Delay in treatment.
  - ✓ Contaminated lesions in the head and face.
  - ✓ Clinical tetanus does not produce a state of immunity, therefore require active immunization.

# Thank you.....